

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in this application.

LISTING OF CLAIMS

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Currently Amended) A position detecting sensor ~~according to claim 4,~~
comprising:

a first magnet having a first pole and a second pole;

a second magnet having a first pole and a second pole and positioned near
the first magnet, the first pole of the second magnet facing the second pole of the
first magnet, the first pole of the first magnet being the same as the first pole of the
second magnet, and the second pole of the first magnet being the same as the
second pole of the second magnet;

a magnetic detecting element in the vicinity of the first and second magnets,
wherein a magnetic flux density detected in a zone including the magnetic detecting
element while a detected body is away from the position detecting sensor more than
a predetermined distance is greater than a magnetic flux density detected in the
zone while the detected body is positioned near at least one side of the position
detecting sensor by the predetermined distance;

a first yoke positioned between the first magnet and the second magnet;

a projecting portion extending at the first yoke in a direction at approximately
right angles with a line extending between the first and second magnets;

a second yoke positioned so as to dispose the magnetic detecting element between the second yoke and a tip end of the projecting portion; and

a third yoke oriented near the projecting portion at the second pole side of the second magnet and at one side of the second yoke,

the magnetic detecting element being positioned in the vicinity including a line extending between the tip end of the projecting portion and the second yoke, and wherein the detected body approaches to the first pole side of the first magnet and the other side of the second yoke; and

wherein the third yoke is positioned in parallel with the extending direction of the projecting portion.

15. (Currently Amended) A position detecting sensor ~~according to claim 3,~~ comprising:

a first magnet having a first pole and a second pole;

a second magnet having a first pole and a second pole and positioned near the first magnet, the first pole of the second magnet facing the second pole of the first magnet, the first pole of the first magnet being the same as the first pole of the second magnet, and the second pole of the first magnet being the same as the second pole of the second magnet;

a magnetic detecting element in the vicinity of the first and second magnets, wherein a magnetic flux density detected in a zone including the magnetic detecting element while a detected body is away from the position detecting sensor more than a predetermined distance is greater than a magnetic flux density detected in the

zone while the detected body is positioned near at least one side of the position detecting sensor by the predetermined distance;

a third yoke positioned at the second pole side of the second magnet, wherein the detected body approaches to the first pole side of the first magnet;

the third yoke being separated from the second pole of the second magnet by a predetermined distance; and

wherein the third yoke has substantially the same feature as the detected body with respect to magnetic permeability.

16. (New) A position detecting sensor for detecting a position of a magnetic body, comprising:

a first yoke comprising a main body portion and a projecting portion extending from the main body in a direction at right angles to the main body, the projecting portion possessing a tip end;

a first magnet disposed at one end of the main body, the first magnet possessing a north end and a south end;

a second magnet disposed at an opposite end of the main body, the second magnet possessing a north end and a south end;

a second yoke positioned so that a space exists between the second yoke and the tip end of the projecting portion;

a magnetic detecting element disposed in the space between the second yoke and the tip end of the projecting portion;

first magnetic flux from the first magnet travels from the north end of the first magnet towards the second yoke, then flows back to the south end of the first magnet via the magnetic detecting element and the projecting portion;

second magnetic flux from the second magnet travels from the north end of the second magnet towards the second yoke via the projecting portion and the magnetic detecting element, then flows back to the south end of the second magnet;

lines of magnetic flux from the first magnet flow in an opposite direction to lines of magnetic flux from the second magnet at the magnetic detecting element;

the magnetic fluxes from the first and second magnets passing through the magnetic detecting element are cancelled with each other when the magnetic body is positioned at a place near or adjacent to the position detecting sensor at which the first magnetic flux passes through the magnetic body; and

the magnetic flux passing through the magnetic detecting element becomes substantially greater than a predetermined threshold value when the magnetic body is positioned away from the position detecting sensor.

17. (New) A position detecting sensor according to claim 16, further comprising a third yoke positioned parallel with the projecting portion.

18. (New) A position detecting sensor according to claim 17, wherein the third yoke is formed integrally with the second yoke to form a substantially L-shaped configuration.

19. (New) A position detecting sensor according to claim 17, wherein the third yoke is separated from the second yoke by a predetermined distance.

20. (New) A position detecting sensor according to claim 16, wherein the first and second magnets at both ends of the main body differ from each other in at least one dimension.

21. (New) A position detecting sensor according to claim 20, wherein the at least one dimension is a thickness of the first and second magnets in an extending direction of the main body of the first yoke.

22. (New) A position detecting sensor according to claim 20, wherein the at least one dimension is a length perpendicular to an extending direction of the main body of the first yoke.